

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Amendment of Part 90 of the Commission's Rules)	WP Docket No. 07-100
)	
)	
)	
SIXTH FURTHER NOTICE OF PROPOSED)	FCC 18-33
RULEMAKING (March 23, 2018))	
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COMMENTS OF V-COMM, L.L.C.

In response to the FCC's request for comments, V-COMM, L.L.C. (V-COMM) has provided comments largely in support of the FCC's proposal regarding the future usage, licensing, management, and band plan for the 4.9 GHz spectrum. V-COMM is a wireless engineering consulting firm with principal members having over 33 years of experience in the wireless industry. V-COMM provides its engineering expertise to public safety clients in the design, acquisition, licensing, and implementation of their radio networks. V-COMM also volunteers its time in support of Regional Planning Committees 8 and 28. In addition, we have provided our expertise to wireless operators in RF design, engineering, system performance, testing, optimization, and interference assessments. We have provided procedural and technical comments

in many FCC proceedings. V-COMM is applying its knowledge of the frequency landscape, as well as the needs of the Public Safety Community, to support the FCC's efforts in the proceeding.

I. COMMENTS SUMMARY REGARDING FCC FACT SHEET

The Commission published a Fact Sheet on March 1, 2018 with a list of twelve (12) items under the heading "What the Sixth Further Notice of Proposed Rulemaking Would Do". The following summarizes V-COMM's positions with respect to those items. The focus of V-COMM's positions is the safeguarding of public safety's primary access to the 4.9 GHz band.

- V-COMM **supports** expansion of the channel aggregation bandwidth limit to 40 megahertz.
- V-COMM **supports** allowing public safety aeronautical mobile and robotic use.
- V-COMM gives **qualified support** requiring applicants for new stations and licensees seeking modifications to submit to frequency coordination administered by FCC-certified frequency coordinators. V-COMM further **proposes** coordination occur in conjunction with the associated Regional Planning Committees and their applicable 4.9 GHz plans.
- V-COMM **supports** maintaining the Universal Licensing System to serve as the frequency coordination database and modifying the 4.9 GHz band application form to capture additional data.
- V-COMM **strongly supports and encourages** requiring existing licensees with point-to-point, point-to-multipoint, base, and mobile stations to seek licenses for such stations in the database so their operations can be protected during future coordination.
- V-COMM **supports** restarting the filing process for regional plans.
- V-COMM **supports** according primary status for point-to-point and point-to-multipoint links that carry or support narrowband traffic on five 1-megahertz channels.
- V-COMM **supports** defining the minimum antenna requirements for point-to-point transmitting antennas to allow for more directional transmissions and larger antennas.

- V-COMM gives **qualified support** to revising the construction notification deadlines from 18 months after license grant to 12 months. V-COMM **recommends** that 4.9 GHz licensees be eligible for slow growth or extended implementation.
- V-COMM **strongly supports** grandfathering existing licensees and their installed systems. We further **support** the FCC’s proposal that current authorizations that encompass the entire band should certify and license specific channel(s) to those licenses.
- V-COMM **strongly encourages** the FCC to limit alternative eligibility for entities such as Critical Infrastructure Industries (CII). Use of the 4.9 GHz band should be limited to communications related to life, safety, and property as opposed to general business purposes, especially in the major metropolitan areas where there is already widespread public safety use. Outside of the major metropolitan areas, V-COMM gives **qualified support** to allowing alternative eligibility for entities such as CII.
- V-COMM **opposes** allowing co-primary status to CII and private internal systems, especially in the major metropolitan areas where there is widespread Public Safety use. Outside of the major metropolitan areas, V-COMM gives **qualified support** to leasing, spectrum sharing approaches, and alternative uses.

II. COMMENTS REGARDING FCC WP DOCKET 07-100

The following provides a more detailed rationale regarding the V-COMM positions as they relate to the FCC 4.9 GHz NPRM.

The Commission has requested comments on their proposal to expand the existing channel aggregation bandwidth limit to 40 megahertz¹. V-COMM supports expansion of the channel aggregation bandwidth limit to 40 megahertz. In this regard, V-COMM envisions a smoother path for today’s users to deploy new technologies by the use of greater data transport. We agree with

¹ NPRM at paragraph 10

the Commission's comment² that the National Public Safety Telecommunications Council (NPSTC) Plan regarding specific channel allocation for air-to-ground and robotic use, and limiting channel aggregation, does not seem to match technology trends in 2018. The Association of Public-Safety Communications Officials (APCO) report provides regions more flexibility in coordinating new technologies, air-to-ground, and robotics, without forcing changes to deployed systems. We recognize the Commission's concern regarding insufficient information for current geographic licenses, but would suggest that requiring more detail is preferred to authorizing specific uses on specific channels. We believe such inflexibility will limit 4.9 GHz usage overall, as some areas adopt specific usages based upon local needs, i.e., rural communities may have more use for drones while dense cities may have more use for ad-hoc mesh networks.

Further, the FCC seeks comment regarding public safety aeronautical mobile and robotic use³ on 4.9 GHz spectrum. V-COMM supports allowing public safety aeronautical mobile and robotic use on 4.9 GHz spectrum. However, we don't believe this should be limited to a particular 5 MHz swath of 4.9 GHz spectrum. Video relay from helicopters and drones are excellent uses of the 4.9 GHz spectrum, which are also ad-hoc rather than point-to-point. V-COMM believes that the aeronautical use should be allowed and coordinated by the Regional Planning Committees (RPCs). The RPCs are in a better position to notice local trends and understand the overall need for such air-to-ground use. Some regions may find it logical to restrict usage to a particular part of the 4.9 GHz band; in addition, some regions may designate varying amounts of spectrum for this use.

The FCC seeks comment regarding requiring applicants for new stations and licensees seeking modifications to submit to frequency coordination administered by FCC-certified frequency coordinators⁴. V-COMM gives qualified support to requiring applicants to submit to frequency coordination administered by FCC-certified frequency coordinators. We agree with apparent consensus of earlier NPRMs that neither self-coordination, nor notice and response coordination, is appropriate for public safety uses in this band. V-COMM, having worked closely

² Section II A, paragraph 10

³ See NPRM at B

⁴ See NPRM at C

with several very active and nominally active RPC's and RPC technical committees, can assure the Commission that the NPSTC proposal for a 5-day review by RPC is impractical and burdensome for volunteer organizations and working groups with no funding. We are curious if and how a hierarchy could be arranged so that the RPCs set the Region Plan and criteria, while certified coordinators used those rules to perform the work of coordination. V-COMM agrees that any application where the power flux density exceeds a given level should be flagged for interregional coordination⁵. This may lead to a request/requirement that certified coordinators become active non-voting members of the RPCs and RPC technical committees. While RPC's are intended to be free from commercial interests and influence, this sharing of needs for frequency use and re-use along with the technical practicalities of coordination, could prove beneficial to all parties.

The Commission invites comment regarding maintaining the Universal Licensing System to serve as the frequency coordination database and modifying the 4.9 GHz band application form to capture additional data in Section D of the NPRM. V-COMM supports maintaining the Universal Licensing System (ULS) to serve as the frequency coordination database, as well as the modification of the 4.9 GHz band application form to capture additional data. V-COMM strongly supports and encourages requiring existing licensees with point-to-point, point-to-multipoint, base, and mobile stations to seek licenses for such stations in the database so their operations can be protected during future coordination. A one-year deadline from notice that the ULS is prepared to accept the additional information seems sufficient.

In Section E of the NPRM, the FCC seeks feedback regarding restarting the filing process for regional plans⁶. V-COMM supports restarting the filing process for regional plans. We believe the Commission's discussion⁷ is well thought out and the requirements are reasonable. With respect to the FCC proposal to afford RPCs the flexibility to file new and amended regional plans to reflect their region specific needs or allowing RPCs to default to the national rules, V-COMM applauds the FCC for recognizing that spectrum usage and regional planning is not a one-size-fits-

⁵ Section II C, paragraph 29

⁶ NRPM at paragraph 43

⁷ Section II E, paragraph 42

all endeavor. As with many other parts of the spectrum, generally the congested and major metropolitan areas have greater need and use-cases for this spectrum, and therefore will have region-specific coordination requirements.

V-COMM also agrees with the FCC's timeline of a six-month deadline for RPC's to notify the FCC that they intend to file a Regional Plan. Further, V-COMM agrees with the deadline of 1-year to file a regional plan, if so elected. These timelines are similar to those FCC mandated changes to other bands under RPC coordination.

In section G of the NPRM, the FCC discusses according primary status for point-to-point and point-to-multipoint links that carry or support narrowband traffic on five 1-megahertz channels. V-COMM supports according primary status for point-to-point and point-to-multipoint links that carry or support narrowband traffic on five 1-megahertz channels. We further consider if it would be within the purview of the RPC Plan for 4.9 GHz to expand the channels where point-to-point and point-to-multipoint are granted primary status if deemed necessary in their territory.

The "Power Limits" section of the NRPM⁸ includes discussion and recommendations for several key parameters regarding point-to-point and point-to-multipoint equipment. V-COMM **supports** raising the minimum antenna gain for point-to-point transmitting antennas to 26 dBi, a maximum 5.5 degree beamwidth, and a minimum 25 dB front-to-back ratio to allow for more directional transmissions and larger antennas. V-COMM has been involved with the licensed microwave coordination processes on behalf of several clients and across multiple bands. Defining these parameters is not uncommon for point-to-point transmissions. We find the aforementioned parameters reasonable and in fact other commenters have noted that these parameters reflect commonly available and reasonably priced equipment⁹. Regarding maximum EIRP¹⁰, we again find this parameter a reasonable requirement for point-to-point transmissions. However, we defer to manufacturers and rural users to provide feedback regarding the suitability of the maximum EIRP levels of 65.15 dBm for point-to-point and 55.15 dBm for point-to-multipoint for long-range

⁸ NPRM Section H, paragraphs 52-58

⁹ NPSTC 4.9 GHz NPSTC Plan Recommendations Final Report, WP Docket No. 07-100, PS Docket No. 06-229, WT Docket No. 06-150, at 7 (dated Oct. 24, 2013) (NPSTC Plan).

¹⁰ NPRM paragraph 57

communications in rural areas. Similarly, we defer to the coordinators regarding the interference potential introduced by these power levels. We note that point-to-point coordination among paths uses a “keyhole” approach to assess interference. The degree to which the interference may be increased with the proposed power limits should be evaluated and quantified by others. With respect to interference to non point-to-point users, we generally sense that the power levels would not have a significant impact. Given the nature of the point-to-point communications, combined with the parameters defined within this NPRM, we would not anticipate a significant impact to other users with relatively low-gain, terrestrial-based communications. Further, with the proposed licensing of the Tx/Rx paths, interference should be more easily defined and avoidable.

In Section J, the Commission seeks comment regarding the proposal to reduce the construction period for fixed point-to-point stations from 18 months to 12 months¹¹. V-COMM gives qualified support to revising the construction notification deadlines from 18 months after license grant to 12 months. V-COMM concurs with the concept of having the construction deadlines and processes align with other construction and reporting deadlines of Part 90. However, we note that the use of some links are, and will be, intimately linked to deployment of wide area systems, which themselves may be eligible for slow-growth or extended implementation. Therefore, we recommend that 4.9 GHz licenses be eligible for those same slow-growth or extended implementations as the systems to and for which they are intimately linked.

In Section K, the FCC requests comments concerning its proposal to extend 4.9 GHz licensing eligibility to other or alternate entities such as CII¹². V-COMM strongly encourages the FCC to limit alternative eligibility for entities such as CII. Use of the 4.9 GHz band should be limited to communications related to life, safety, and property as opposed to general business purposes, especially in the major metropolitan areas where there is already widespread public safety use. We support giving public safety entities a higher priority in the coordination process and allowing the regional plans to set forth criteria for determining how to discriminate mutually exclusive applications that could arise between public safety and alternative entities. V-COMM does not support allowing commercial entities into this spectrum for non-public safety usage.

¹¹ NPRM paragraph 63

¹² NPRM paragraph 70

However, we believe that the RPC's should have the leeway to determine whether commercial entities are acceptable.

The FCC also seeks comments on the leasing of the 4.9 GHz band in Section K¹³. V-COMM gives qualified support to spectrum leasing outside of major metropolitan areas. Within major metropolitan areas, the use of the 4.9 GHz band is too widespread to justify leasing the spectrum. Outside of major metropolitan areas, permitting leasing will provide for creativity in use cases for this spectrum, potentially providing revenue streams for governmental agencies to recoup some of the costs of deploying and maintaining complex wireless systems.

Additionally in Section K, the FCC desires comments for its plans on two-tiered sharing on a secondary basis¹⁴, as well as on the subject of re-designation of the 4.9 GHz band¹⁵. V-COMM opposes co-primary status to CII and private internal systems, especially in the major metropolitan areas where there is widespread Public Safety use. The regions that have seen the most robust adoption of this band by public safety have the fewest other available spectrum options for provision of those services, wireless, or otherwise. These are also the regions that would see the quickest adoption of any new spectrum by commercial entities. Outside of the major metropolitan areas, V-COMM gives qualified support spectrum sharing approaches and alternative uses. Commercial entities should be required to obtain a waiver for use of the 4.9 GHz spectrum, to allow for review by local and adjacent public safety entities, as well as parties with general interest in use of spectrum.

¹³ NPRM paragraph 75

¹⁴ NPRM paragraph 82

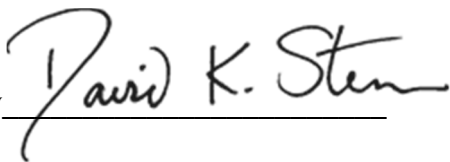
¹⁵ NPRM paragraph 85

III. CONCLUSION

V-COMM is generally very supportive of the FCC's recommendations related to the modification of the rules covering the 4.9 GHz Public Safety Band; however, V-COMM's goal is that public safety's primary access to the 4.9 GHz band be maintained. V-COMM strongly supports requiring the existing licensees to update their licenses to reflect actual usage so their operations can be protected. We also strongly support grandfathering existing licensees and their installed systems. However, V-COMM strongly objects to co-primary status, spectrum leasing, spectrum sharing, and alternative uses within the major metropolitan areas where there is widespread public safety use. Finally, we support giving the RPCs the flexibility to file new and amended plans to the commission to reflect their region's specific needs.

Respectfully submitted,

V-COMM, L.L.C.

By _____

David Stern

Vice President

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Dated: July 6, 2018

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¹ NPRM at paragraph 10

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² Section II A, paragraph 10

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Additionally in Section K, the FCC desires comments for its plans on two-tiered sharing on a secondary basis¹⁴, as well as on the subject of re-designation of the 4.9 GHz band¹⁵. V-COMM opposes co-primary status to CII and private internal systems, especially in the major metropolitan areas where there is widespread Public Safety use. The regions that have seen the most robust adoption of this band by public safety have the fewest other available spectrum options for provision of those services, wireless, or otherwise. These are also the regions that would see the quickest adoption of any new spectrum by commercial entities. Outside of the major metropolitan areas, V-COMM gives qualified support spectrum sharing approaches and alternative uses. Commercial entities should be required to obtain a waiver for use of the 4.9 GHz spectrum, to allow for review by local and adjacent public safety entities, as well as parties with general interest in use of spectrum.

¹³ NPRM paragraph 75

¹⁴ NPRM paragraph 82

¹⁵ NPRM paragraph 85

III. CONCLUSION

V-COMM is generally very supportive of the FCC's recommendations related to the modification of the rules covering the 4.9 GHz Public Safety Band; however, V-COMM's goal is that public safety's primary access to the 4.9 GHz band be maintained. V-COMM strongly supports requiring the existing licensees to update their licenses to reflect actual usage so their operations can be protected. We also strongly support grandfathering existing licensees and their installed systems. However, V-COMM strongly objects to co-primary status, spectrum leasing, spectrum sharing, and alternative uses within the major metropolitan areas where there is widespread public safety use. Finally, we support giving the RPCs the flexibility to file new and amended plans to the commission to reflect their region's specific needs.

Respectfully submitted,

V-COMM, L.L.C.

By David K. Stern

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Vice President

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Dated: July 6, 2018